

**SONY®**

LCD MONITOR

**LMD-1420**

**LMD-1420MD**

**LMD-1410**

**LMD-1410SC**

SERVICE MANUAL

1st Edition (Revised 2)

## **⚠ 警告**

このマニュアルは、サービス専用です。

お客様が、このマニュアルに記載された設置や保守、点検、修理などを行うと感電や火災、人身事故につながる可能性があります。

危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

## **⚠ WARNING**

This manual is intended for qualified service personnel only.

To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

## **⚠ WARNUNG**

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.

Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

## **⚠ AVERTISSEMENT**

Ce manuel est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

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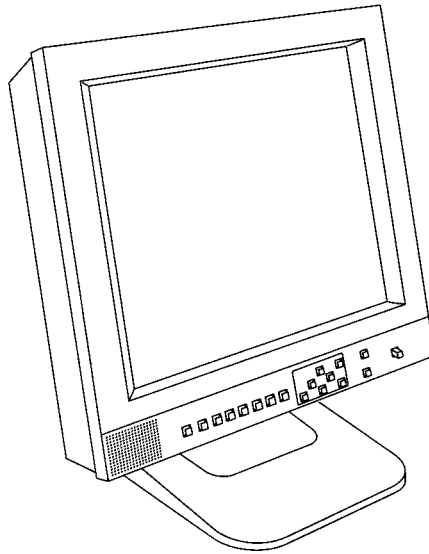
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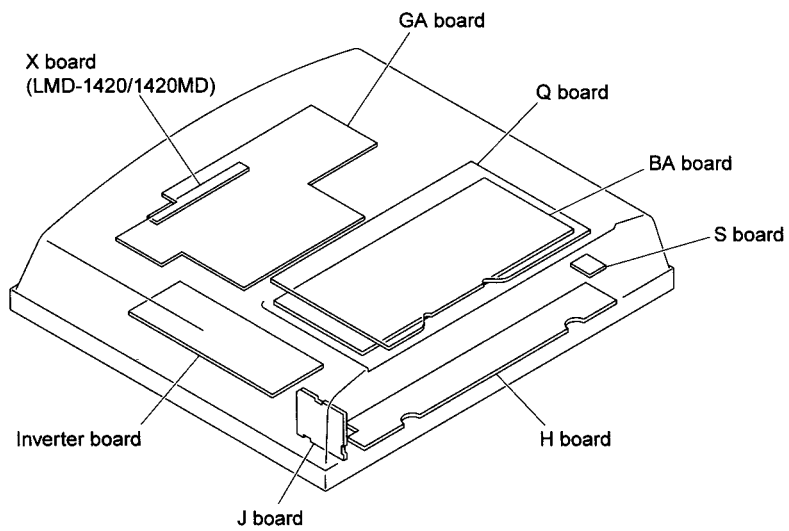
## Section 1

### Service Overview

#### 1-1. Appearance Figure

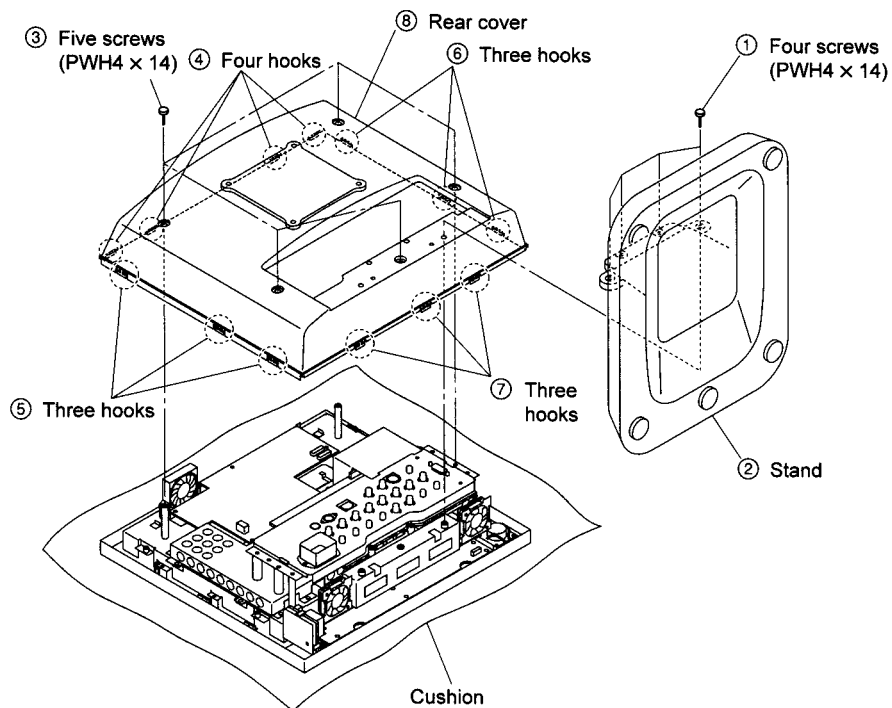


#### 1-2. Board Location



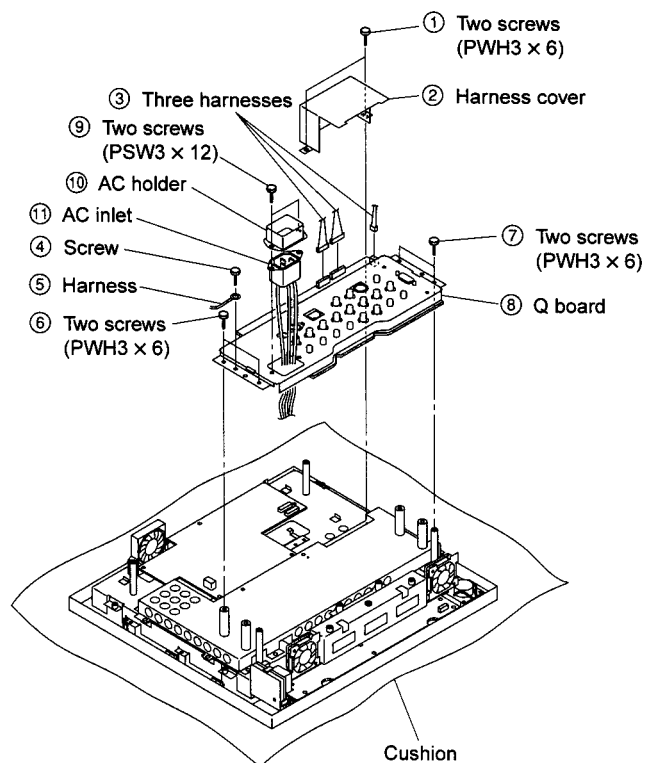
## 1-3. Disassembly

### 1-3-1. Rear Cover



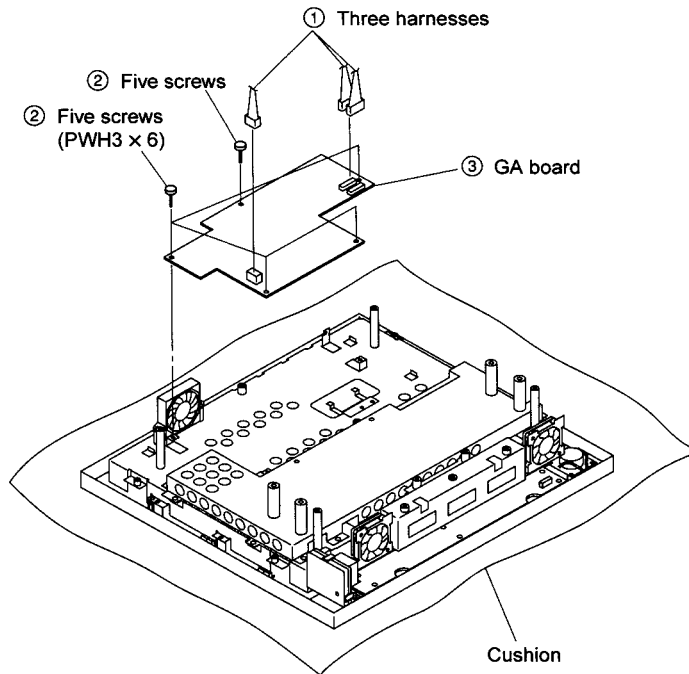
### 1-3-2. Q Board

- Remove the rear cover. (Refer to Section 1-3-1.)



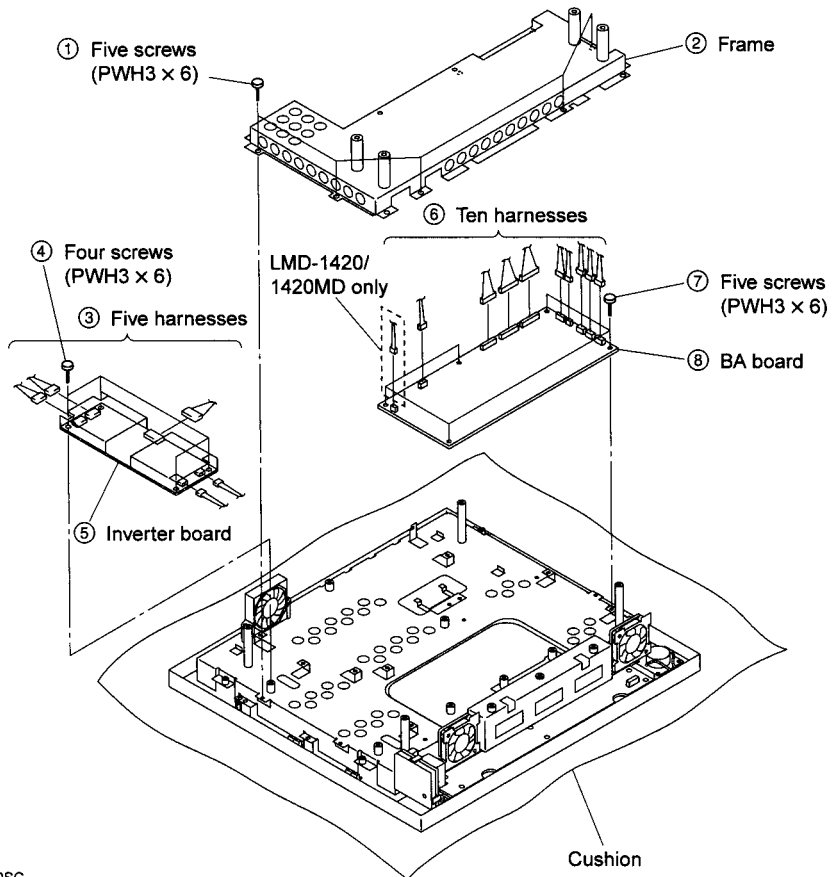
### 1-3-3. GA Board

- Remove the rear cover. (Refer to Section 1-3-1.)



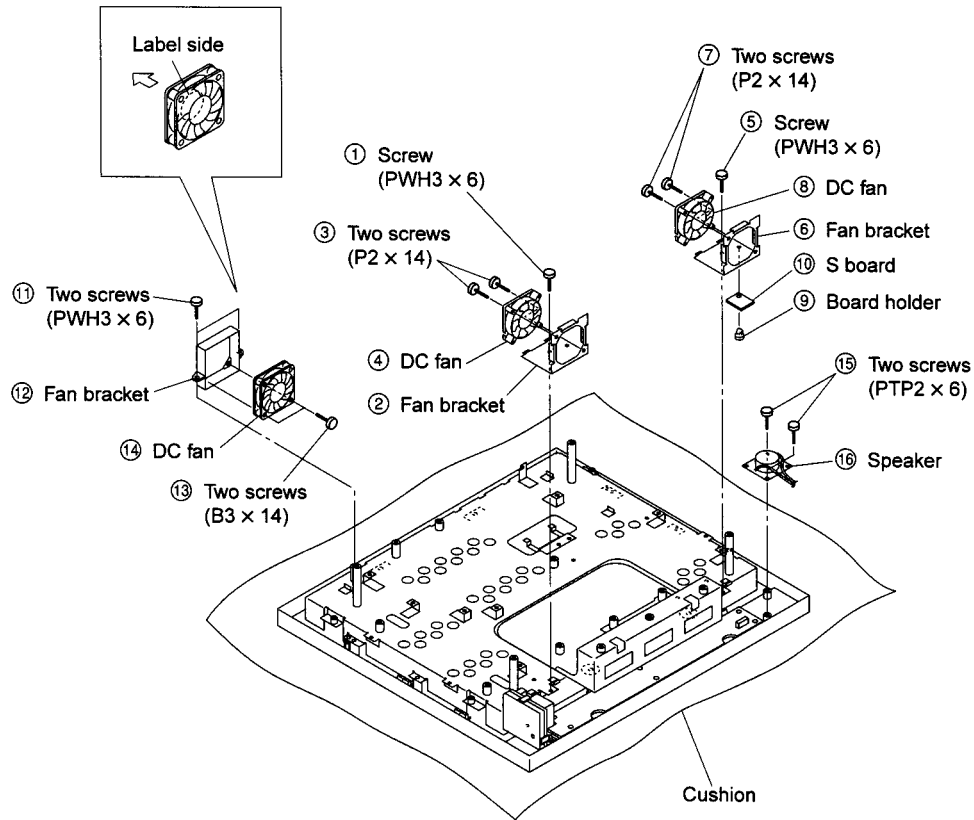
### 1-3-4. Inverter Board/BA Board

- Remove the rear cover. (Refer to Section 1-3-1.)
- Remove the Q board. (Refer to Section 1-3-2.)



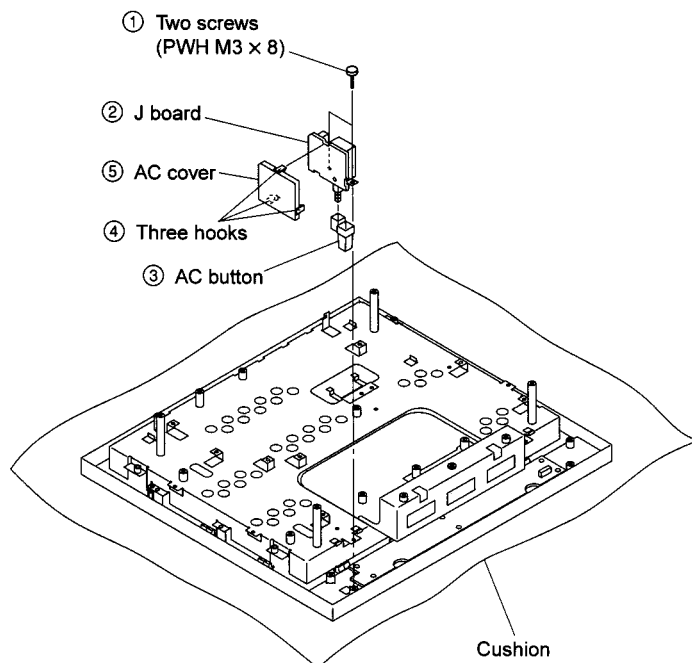
### 1-3-5. DC Fan/Speaker

- Remove the rear cover. (Refer to Section 1-3-1.)
- Remove the Q board. (Refer to Section 1-3-2.)



### 1-3-6. J Board

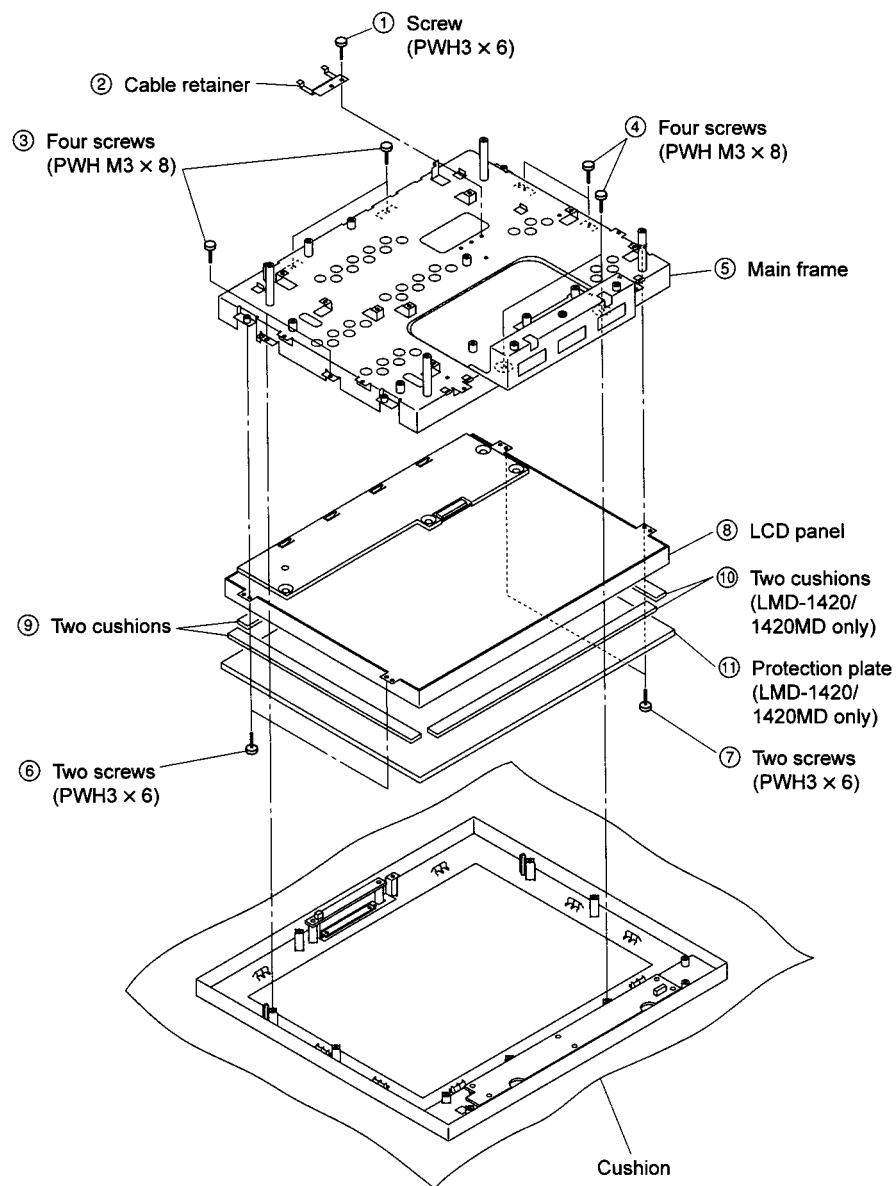
- Remove the rear cover. (Refer to Section 1-3-1.)
- Remove the Q board. (Refer to Section 1-3-2.)





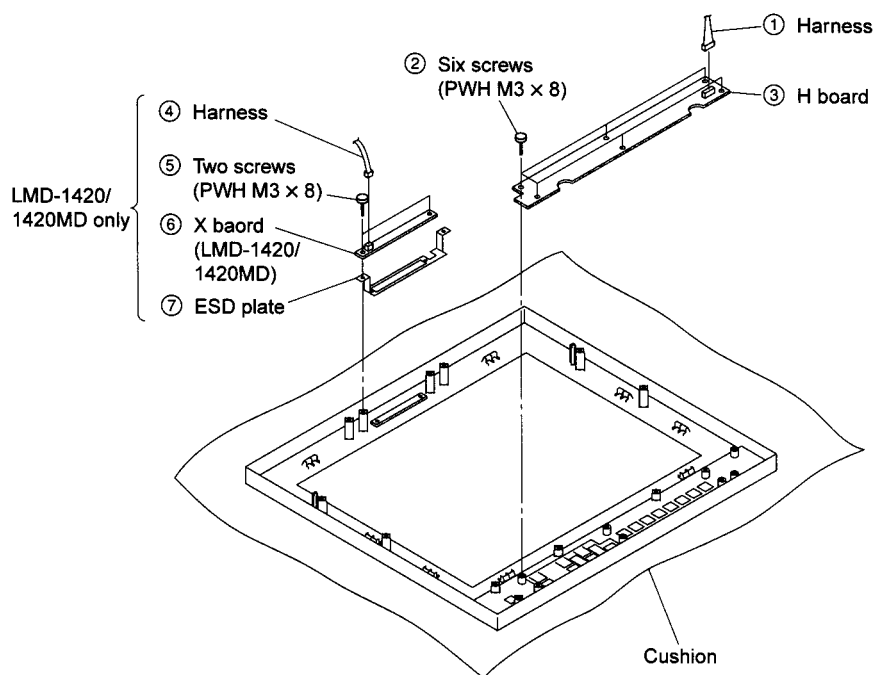
### 1-3-7. LCD Panel

- Remove the rear cover. (Refer to Section 1-3-1.)
- Remove the Q board. (Refer to Section 1-3-2.)
- Remove the GA board. (Refer to Section 1-3-3.)
- Remove the inverter board and BA board. (Refer to Section 1-3-4.)
- Remove the DC fan and speaker. (Refer to Section 1-3-5.)
- Remove the J board. (Refer to Section 1-3-6.)



### 1-3-8. H Board/X Board (X Board: LMD-1420/1420MD)

- Remove the rear cover. (Refer to Section 1-3-1.)
- Remove the Q board. (Refer to Section 1-3-2.)
- Remove the GA board. (Refer to Section 1-3-3.)
- Remove the inverter board and BA board. (Refer to Section 1-3-4.)
- Remove the DC fan and speaker. (Refer to Section 1-3-5.)
- Remove the J board. (Refer to Section 1-3-6.)
- Remove the LCD panel. (Refer to Section 1-3-7.)



### 1-4. Unleaded Solder

Boards requiring use of unleaded solder are printed with a lead free mark (LF) indicating the solder contains no lead.

(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

**LF** : LEAD FREE MARK

#### Notes

- Be sure to use the unleaded solder for the printed circuit board printed with the lead free mark.
- The unleaded solder melts at a temperature about 40 °C higher than the ordinary solder, therefore, it is recommended to use the soldering iron having a temperature regulator.
- The ordinary soldering iron can be used but the iron tip has to be applied to the solder joint for a slightly longer time. The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful.

1-5. Warning on Power Connection

Use a proper power cord for your local power supply.

	The United States, Canada	Continental Europe	UK, Ireland, Australia, New Zealand
Plug type	VM0233	COX-07/636	— <sup>1)</sup>
Female end	VM0089	COX-02/VM0310B	VM0303B
Cord type	SVT	H05VV-F	CEE (13) 53rd (O, C)
Rated Voltage & Current	10 A/125 V	10 A/250 V	10 A/250 V
Safety approval	UL/CSA	VDE	VDE

1) Use an appropriate rating plug which is applied to local regulations.

## Section 2

### Electrical Alignment

#### 2-1. Preparation

##### 2-1-1. Required Equipment

- Luminance meter: CA-210, CA-110 made by Konica Minolta or equivalent. If it is not available, make adjustment by visually comparing the LCD monitor with the reference monitor that has already been calibrated correctly.
- Signal generator: Tektronix TG2000 or equivalent

##### 2-1-2. Warm-up Time

Before starting adjustment, allow a warm-up of minimum 120 minutes to stabilize the backlight of the LCD panel.

##### 2-1-3. How to Enter Service Mode

1. Press "MENU" to display the MENU screen.
2. Press the "LINE A" and "ENTER" buttons simultaneously to enter the service mode.

##### 2-1-4. Preparing the Power Supply and Signals

1. Connect the supplied power cord to AC IN of this unit.  
Power voltage: 100 to 240 V AC, 50/60 Hz
2. Input the composite signal from the TG2000 to this unit to display entirely white screen.
3. Turn on the power of this unit. Select the signal that is used for signal input.

#### 2-2. White Balance Adjustment

Press "MENU" to display the user menu.

To move the cursor to select an item, use the Up ↑ or Down ↓ key. To set the selected item, press the "ENTER" key.

1. Move the cursor to "WHITE BALANCE" using the Up ↑ key and press the "ENTER" key to enter the "COLOR TEMP" layer.
2. After pressing the "ENTER" key, select "USER SETTING" using the Up ↑ key and press the "ENTER" key.

##### HIGH adjustment

Target value:  $x = 0.283$

$y = 0.298$

1. Set the signal level of the TG2000 to 80IRE.
2. Select "ADJUST GAIN" and adjust the GAIN.  
Adjust using "G" and "B" while "R" is fixed.
3. Set the signal level of the TG2000 to 30IRE.
4. Select "ADJUST BIAS" and adjust the BIAS.  
Adjust using "G" and "B" while "R" is fixed.
5. Adjust the tracking by steps 3 and 5.
6. Enter the service mode and move the cursor to "TEP" using the Down ↓ key. Press the "ENTER" key to enter the "COLOR TEMP" layer.
7. Move the cursor to "C-TEMP SAVE" using the Down ↓ key and press the "ENTER" key. Select "HIGH" using the Up ↑ key and press the "ENTER" key.

##### LOW adjustment

Target value:  $x = 0.313$

$y = 0.329$

1. Set the signal level of the TG2000 to 80IRE.
2. Select "ADJUST GAIN" and adjust the GAIN.  
Adjust using "G" and "B" while "R" is fixed.
3. Set the signal level of the TG2000 to 30IRE.
4. Select "ADJUST BIAS" and adjust the BIAS.  
Adjust using "G" and "B" while "R" is fixed.
5. Adjust the tracking by steps 3 and 5.
6. Enter the service mode and move the cursor to "TEP" using the Down ↓ key. Press the "ENTER" key to enter the "COLOR TEMP" layer.
7. Move the cursor to "C-TEMP SAVE" using the Down ↓ key and press the "ENTER" key. Select "LOW" using the Up ↑ key and press the "ENTER" key.

## **LOW 2 adjustment**

Target value:  $x = 0.330$

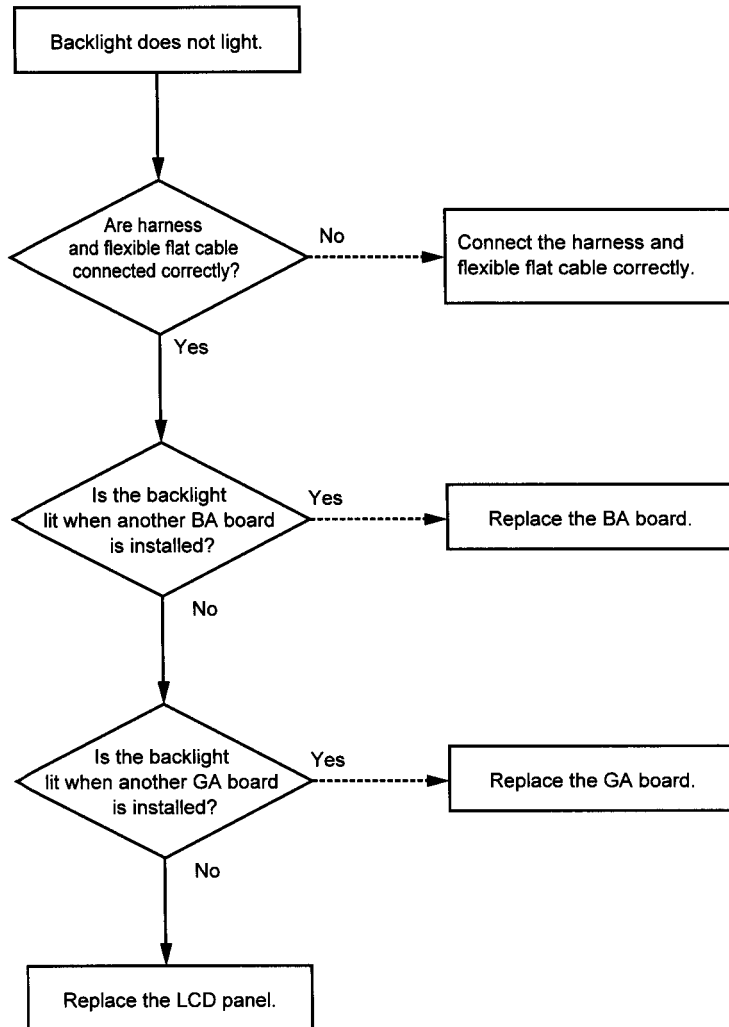
$y = 0.346$

1. Set the signal level of the TG2000 to 80IRE.
2. Select "ADJUST GAIN" and adjust the GAIN.  
Adjust using "G" and "B" while "R" is fixed.
3. Set the signal level of the TG2000 to 30IRE.
4. Select "ADJUST BIAS" and adjust the BIAS.  
Adjust using "G" and "B" while "R" is fixed.
5. Adjust the tracking by steps 3 and 5.
6. Enter the service mode and move the cursor to "TEP"  
using the Down ↓ key. Press the "ENTER" key to  
enter the "COLOR TEMP" layer.
7. Move the cursor to "C-TEMP SAVE" using the Down  
↓ key and press the "ENTER" key. Select "LOW 2"  
using the Up ↑ key and press the "ENTER" key.

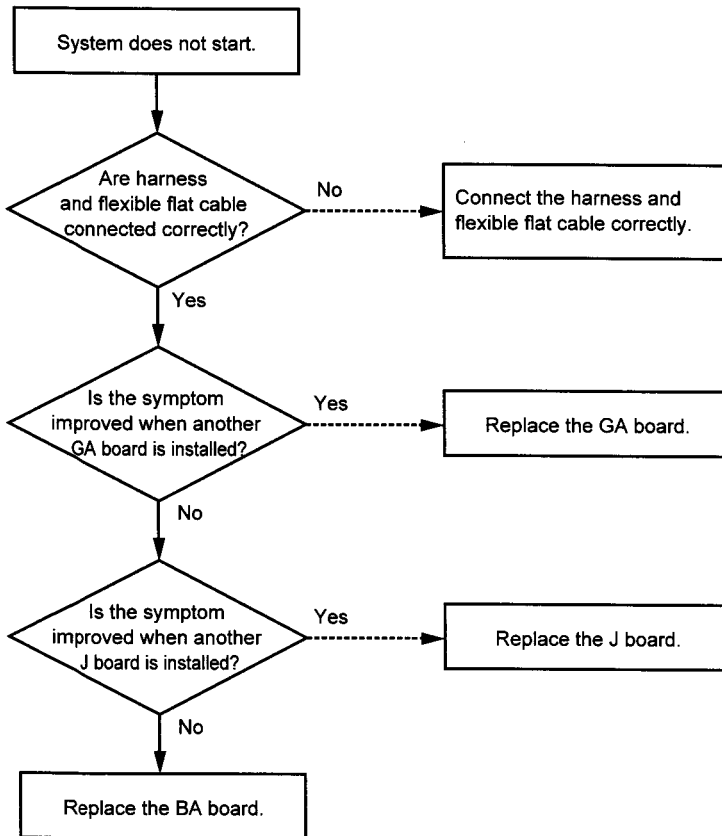
## Section 3

### Troubleshooting

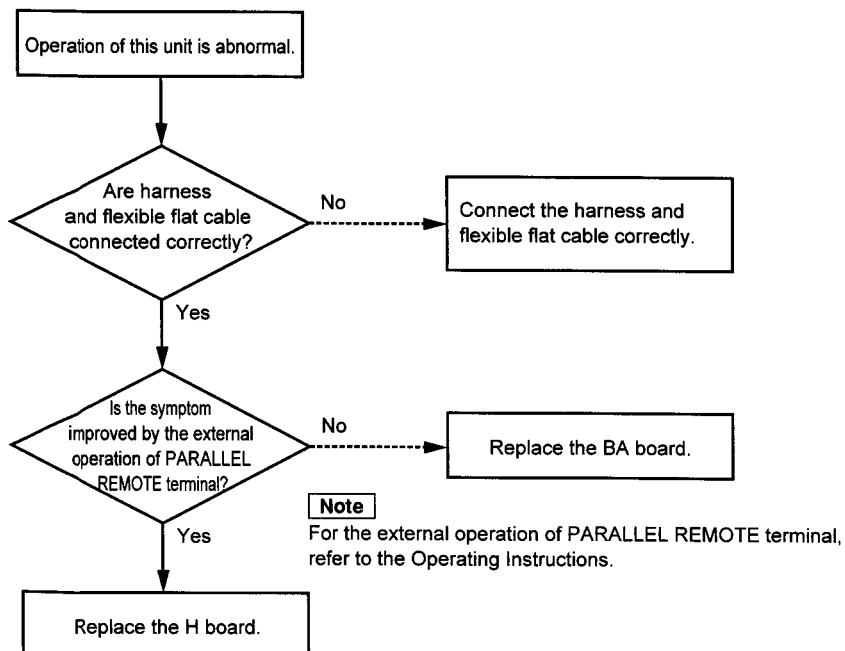
#### 3-1. Backlight does not light



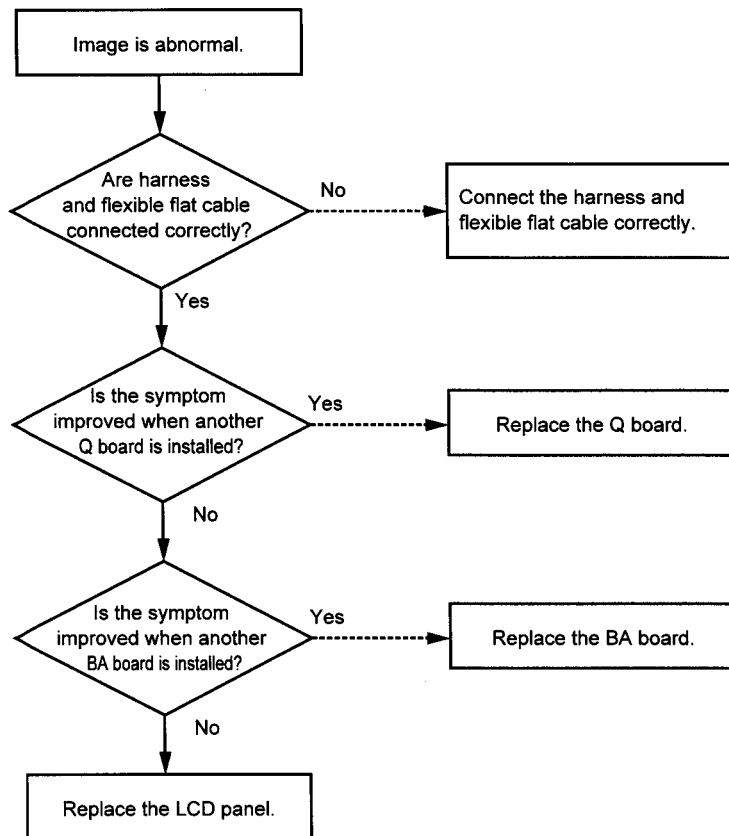
### 3-2. System does not start



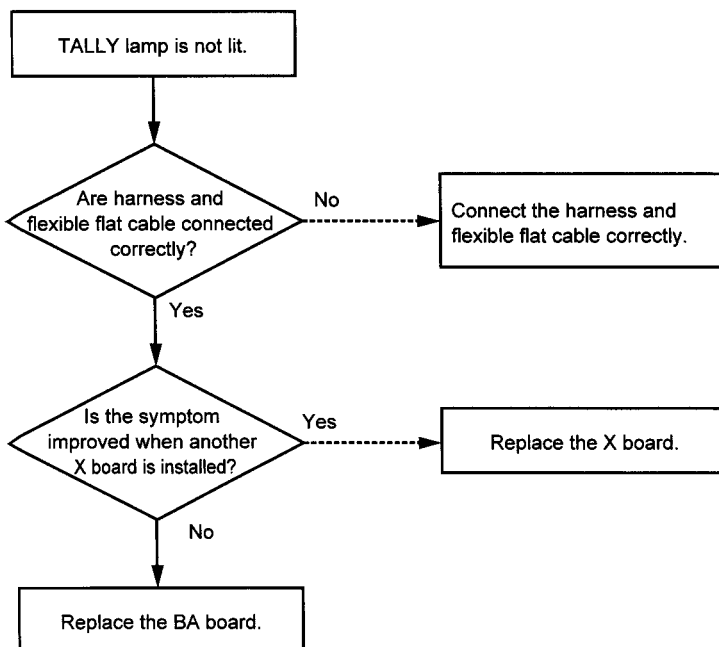
### 3-3. Operation of this unit is abnormal



### 3-4. Image is abnormal

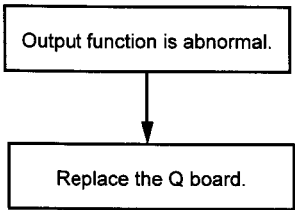


### 3-5. TALLY lamp is not lit (LMD-1420/1420MD)

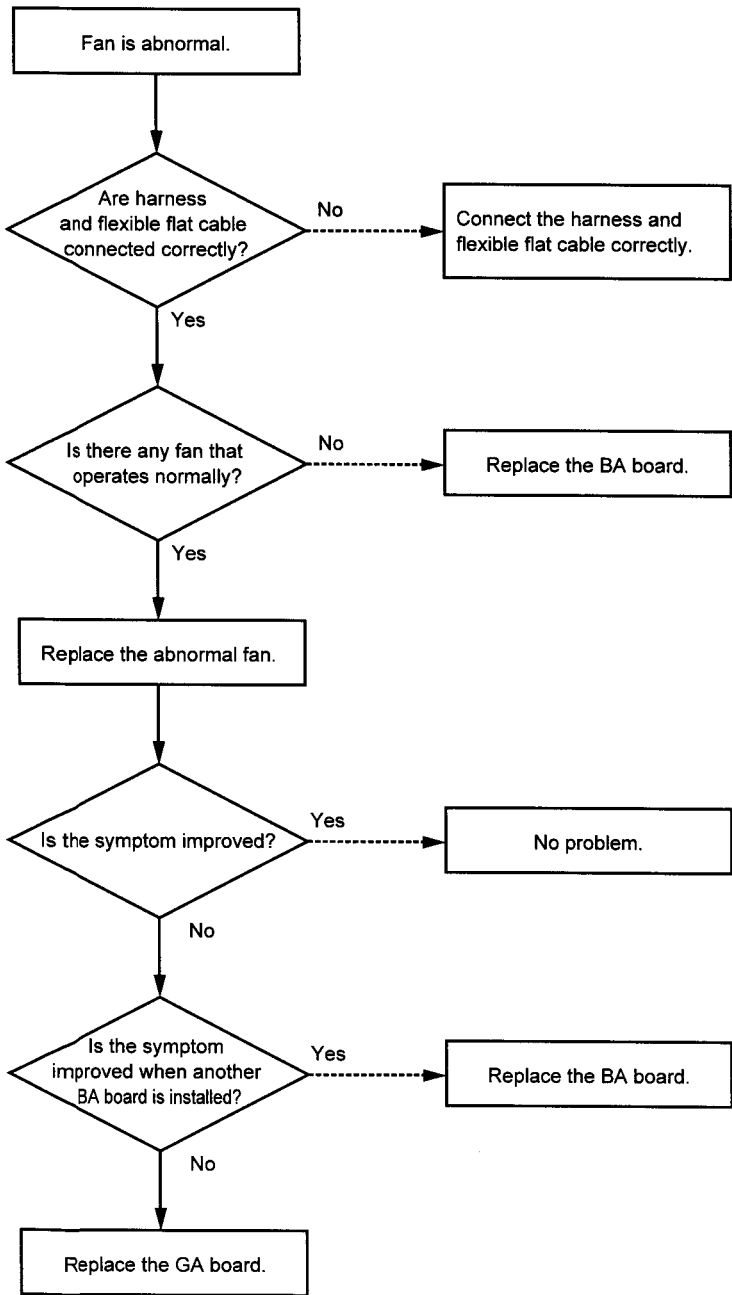




3-6. Output function is abnormal



3-7. Fan is abnormal



## Section 4

### Spare Parts

#### 4-1. Notes on Repair Parts

##### 1. Safety Related Components Warning

###### **WARNING**

Components marked  $\triangle$  are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

##### 2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.

Parts list has the present standardized repair parts.

##### 3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

##### 4. Harness

Harnesses with no part number are not registered as spare parts.

In need of repair, get components shown in the list and repair using them.

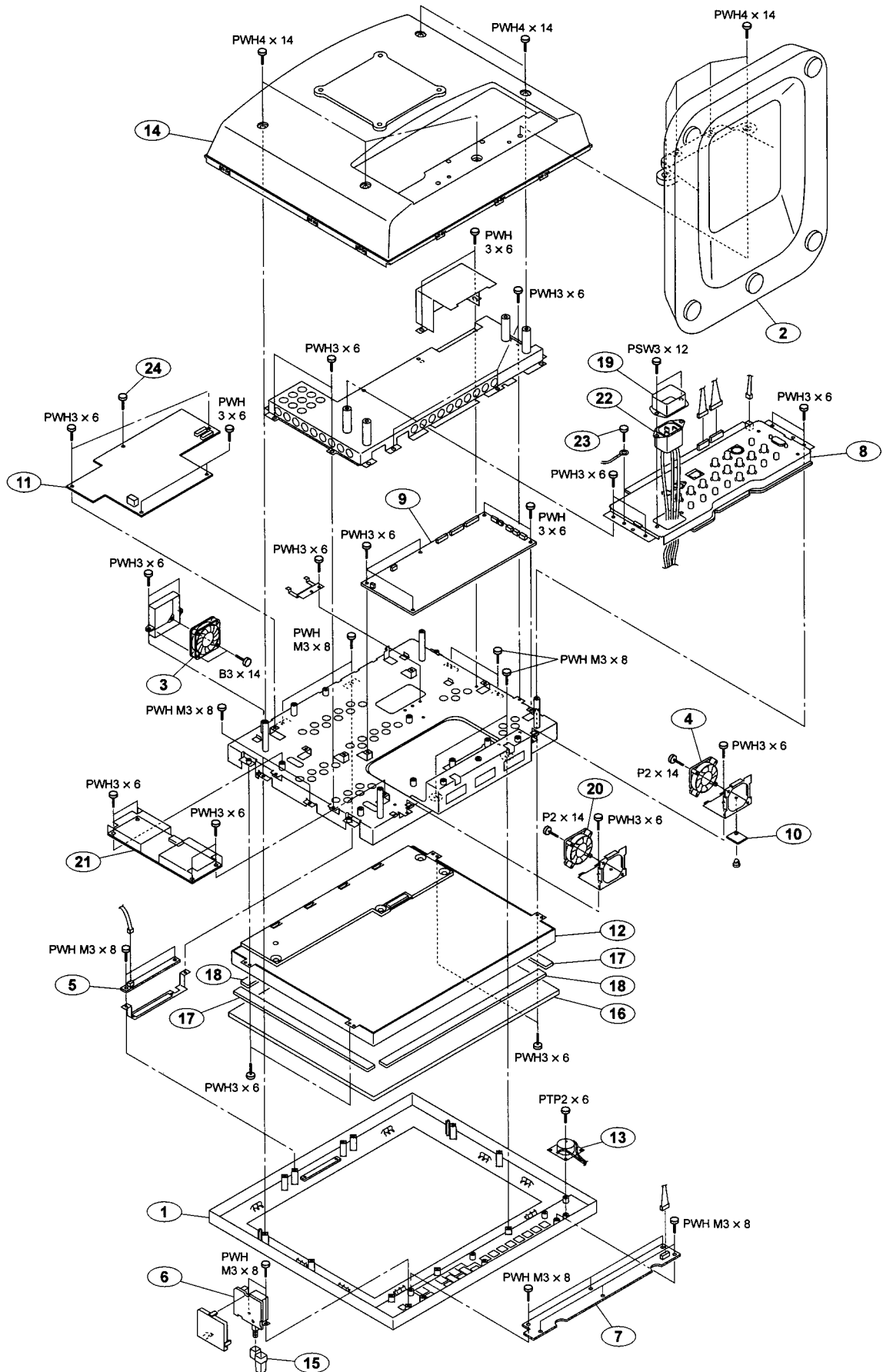
##### 5. Symbol



###### **Protective earth (ground)**

To identify any terminal which is intended for connection to an external conductor for protection against electric shock in case of a fault, or the terminal of a protective earth (ground) electrode.

Overall Block  
4-2. Exploded Views



No.	Part No.	SP Description	
1	X-2050-919-1	s BEZEL ASSY (for LMD-1410)	7-621-772-70 s SCREW +B 2X14
	X-2050-920-1	s BEZEL ASSY (for LMD-1420)	7-681-000-61 s SCREW +PWH M3X8
	X-2102-436-1	s BEZEL ASSY (for LMD-1410SC)	7-682-551-09 s SCREW +B3X14
	X-2103-550-1	s BEZEL ASSY (for LMD-1420MD)	7-682-903-19 s SCREW +PWH 3X6 (EP-FE/ZNBK/CM2)
2	X-2055-900-1	s STAND ASSY (for LMD-1420/1410)	7-682-904-49 s SCREW +PWH 4X14 (EP-FE/ZNBK/CM2)
	X-2102-437-1	s STAND ASSY (for LMD-1410SC)	
	X-2103-551-1	s STAND ASSY (for LMD-1420MD)	7-682-950-09 s SCREW +PSW 3X12 (EP-FE/ZNBK/CM2)
3	△ 1-787-341-11	s FAN , DC (40 SQUARE)	7-685-104-19 s SCREW +PTP2X6 (EP-FE/ZNBK/CM2)
4	△ 1-787-342-11	s FAN, DC (35 SQUARE)	
5	1-789-212-11	s MOUNTED CIRCUIT BOARD, X (for LMD-1420/1420MD)	
6	1-789-214-11	s MOUNTED CIRCUIT BOARD, J	
7	1-789-228-11	s MOUNTED CIRCUIT BOARD, H (for LMD-1410/1410SC)	
	1-789-215-11	s MOUNTED CIRCUIT BOARD, H (for LMD-1420)	
	1-789-215-21	s MOUNTED CIRCUIT BOARD, H (for LMD-1420MD)	
8	1-789-229-11	s MOUNTED CIRCUIT BOARD, Q (for LMD-1410/1410SC)	
	1-789-213-11	s MOUNTED CIRCUIT BOARD, Q (for LMD-1420)	
	1-789-213-21	s MOUNTED CIRCUIT BOARD, Q (for LMD-1420MD)	
9	1-789-263-11	s MOUNTED CIRCUIT BOARD, BA (for LMD-1420)	
	1-789-263-21	s MOUNTED CIRCUIT BOARD, BA (for LMD-1410)	
	1-789-263-31	s MOUNTED CIRCUIT BOARD, BA (for LMD-1410SC)	
	1-789-263-41	s MOUNTED CIRCUIT BOARD, BA (for LMD-1420MD)	
10	1-789-265-11	s MOUNTED CIRCUIT BOARD, S	
11	1-789-266-11	s MOUNTED CIRCUIT BOARD, GA (for LMD-1420/1410/1410SC)	
	1-789-266-21	s MOUNTED CIRCUIT BOARD, GA (for LMD-1420MD)	
12	△ 1-805-847-11	s PANEL, LCD	
13	1-826-107-11	s SPEAKER	
14	2-582-179-01	s COVER, REAR (for LMD-1420/1410)	
	2-582-179-11	s COVER, REAR (for LMD-1410SC)	
	2-582-179-21	s COVER, REAR (for LMD-1420MD)	
15	2-636-008-01	s BUTTON, AC SWITCH (for LMD-1420/1410)	
	2-636-008-11	s BUTTON, AC SWITCH (for LMD-1410SC)	
	2-636-008-21	s BUTTON, AC SWITCH (for LMD-1420MD)	
16	2-592-582-01	s PLATE, PROTECTION (for LMD-1420/1420MD)	
17	2-592-583-01	s CUSHION (for LMD-1420/1420MD)	
18	2-592-583-11	s CUSHION (for LMD-1420/1420MD)	
19	2-990-241-02	s HOLDER (A), PLUG	
20	△ 1-787-342-11	s DC FAN	
21	1-789-373-11	s MOUNTED CIRCUIT BOARD, INVERTER (for LMD-1420/1410/1410SC)	
	1-789-373-21	s MOUNTED CIRCUIT BOARD, INVERTER (for LMD-1420MD)	
22	△ 1-910-013-31	s CONNECTOR ASSY, 3P VH	
23	2-686-285-01	s SCREW +T M4X8 WITH LW (for LMD-1420MD)	
	7-682-961-01	s SCREW +PSW 4X8 (for LMD-1420/1410/1410SC)	
24	2-686-286-01	s SCREW +P M3X8 WITH SW & LW (for LMD-1420MD)	
	7-682-903-19	s SCREW +PWH 3X6 (EP-FE/ZNBK/CM2) (for LMD-1420/1410/1410SC)	

### 4-3. Packing Materials & Supplied Accessories

#### ----- PACKING MATERIALS & SUPPLIED ACCESSORIES -----

\*1: [LMD-1420/1410]

\*2: [LMD-1410SC]

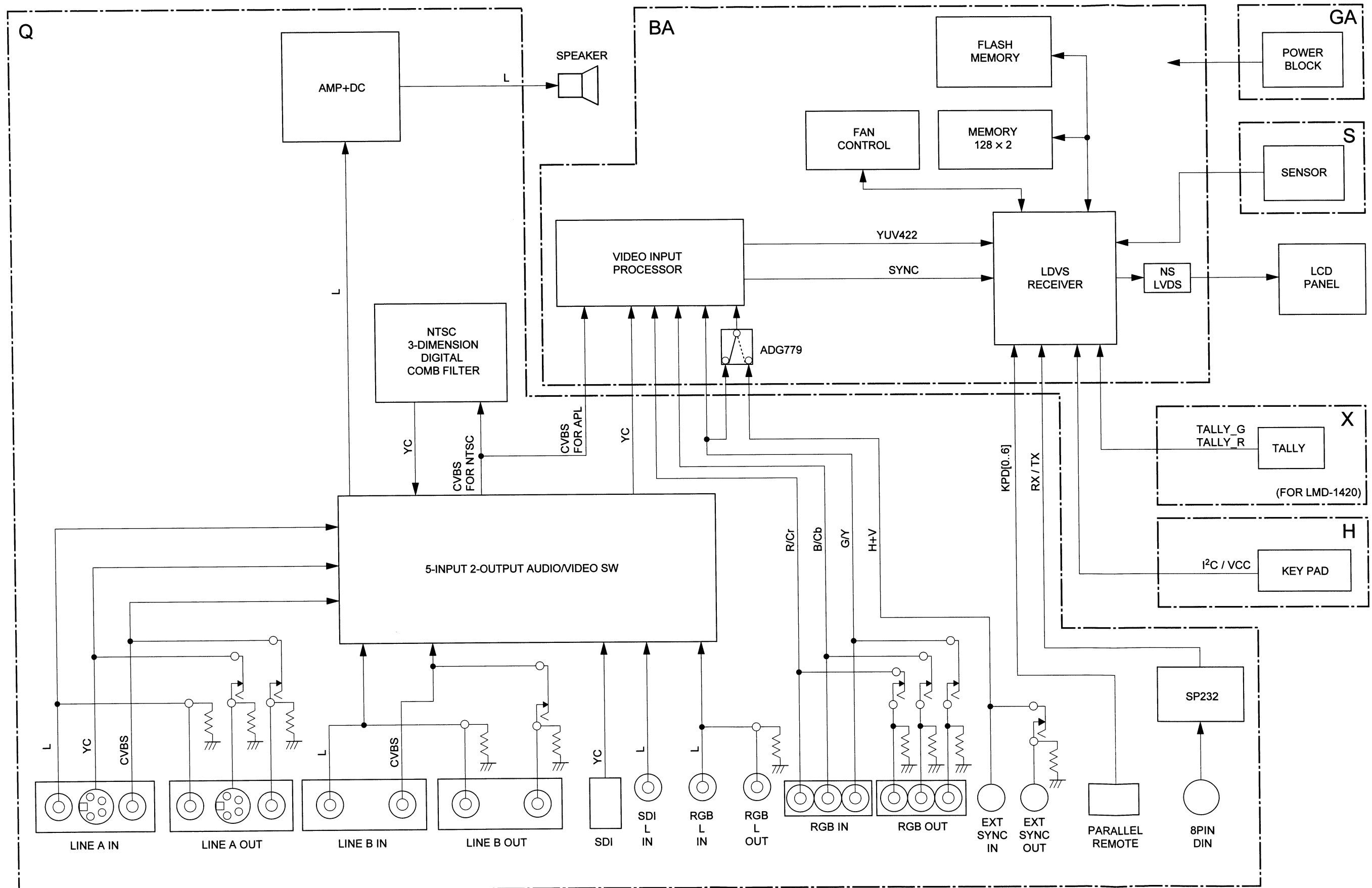
\*3: [LMD-1420MD]

Ref. No.

or Q'ty Part No. SP Description

1pc	*1	2-581-512-02	s	CD-ROM (Japanese, English, French, German, Spanish, Italian, Traditional Chinese, Simplified Chinese, Korean)
	*2	2-649-368-02	s	CD-ROM (English, French, German, Spanish, Italian)
	*3	2-659-025-01	s	CD-ROM (Simplified Chinese, Traditional Chinese, German, Danish, Spanish, Finnish, French, English, Greek, Italian, Japanese, Korean, Dutch, Norwegian, Portuguese, Swedish)
1pc	*1	2-590-000-02	s	OPERATING, INSTRUCTIONS (JAPANESE, ENGLISH)
1pc	*2	2-649-369-12	s	OPERATING, INSTRUCTIONS (JAPANESE, ENGLISH)
1pc	*3	2-659-024-01	s	MANUAL, INSTRUCTION (JAPANESE, ENGLISH)
1pc		2-990-242-01	s	HOLDER (B), PLUG
1pc	*3	3-170-078-01	s	HOLDER (B), PLUG
1pc	*1	4-099-493-11	s	USING THE CD-ROM MANUAL (Japanese, English, French, German, Italian, Simplified Chinese, Traditional Chinese, Korean)
1pc	*2	4-099-493-21	s	USING THE CD-ROM MANUAL (English, French, German, Italian, Spanish)
1pc	*3	2-549-388-11	s	USING THE CD-ROM MANUAL (Simplified Chinese, Traditional Chinese, German, Danish, Spanish, Finnish, French, English, Greek, Italian, Japanese, Korean, Dutch, Norwegian, Portuguese, Swedish)
1pc	▲	-----		CORD, POWER (See Sec 1-5. Warning on Power Connection)

# Section 5 Block Diagrams



Overall

**Frame Wiring      Frame Wiring**



## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

